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Use of fuzzy sets in modeling of GIS objects

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. The paper discusses modeling and methods of data visualization in geographic information systems. Information processing in Geoinformatics is based on the use of models. Therefore, geoinformation modeling is a key in the chain of GEODATA processing. When solving problems, using geographic information systems often requires submission of the approximate or insufficient reliable information about the map features in the GIS database. Heterogeneous data of different origin and accuracy have some degree of uncertainty. In addition, not all information is accurate: already during the initial measurements, poorly defined terms and attributes (e.g., «soil, well-drained») are used. Therefore, there are necessary methods for working with uncertain requirements, classes, boundaries. The author proposes using spatial information fuzzy sets. In terms of a characteristic function, a fuzzy set is a natural generalization of ordinary sets, when one rejects the binary nature of this feature and assumes that it can take any value in the interval.

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